LISTING OF CLAIMS

The listing of the claims will replace all prior versions, and listings, of claims in the application:

What is claimed:

1. (Currently amended) A method of depositing a film on a substrate in a reaction chamber, comprising:

introducing a first precursor gas into the reaction chamber;

initiating a first pulse of electromagnetic irradiation to form radicals species from said first precursor gas in said reaction chamber, where the radical species react with the surface of the substrate to form a radical terminated surface on the substrate;

purging the reaction chamber;

introducing a second precursor gas into the reactor; and

initiating a second pulse of electromagnetic irradiation to form second radicals species from said second precursor gas in said reaction chamber, where the second radical species react with the radical terminated surface to form a layer of film on the substrate.

2. (Withdrawn) A method of removing a film on a substrate in a reaction chamber, comprising:

introducing a gas into the reaction chamber;

irradiating the gas with a first pulse of electromagnetic irradiation, forming radical species from said gas; and

reacting the radicals with the film on the surface of the substrate to form a volatile compound and thus removing an atomic layer of the film.

3. (Withdrawn) A method for depositing an atomic layer on a substrate in a reaction chamber comprising:

introducing reactant gas or gasses into the reaction chamber and reacting the reactant with the surface of the substrate to form an atomic layer on the surface of the substrate;

evacuating the reaction chamber; and

irradiating the surface of the substrate with ultra-violet radiation.

4. (Previously presented) The method of claim 1, further comprising:

pre-treating the substrate to condition the surface of the substrate.

5. (Previously presented) The method of claim 1, wherein said purging step comprises evacuating the reaction chamber, purging with an inert gas, or both.

6. (Original) The method of claim 1 further comprising:

purging the chamber after the step of initiating a second pulse of electromagnetic irradiation; and

repeating the steps to form a desired film.

7. (Previously presented) The method of claim 1 wherein the method is carried out at a temperature in the range of approximately 20 to 400 °C.

8. (Previously presented) The method of claim 1 wherein the method is carried out at a temperature in the range of approximately 100 to 200 °C.

9. (Previously presented) The method of claim 1, wherein the method is carried out at a temperature in the range of approximately 20 to 30 °C.

10. (Previously presented) The method of claim 1 wherein the electromagnetic irradiation is comprised of visible light radiation, infrared radiation, ultraviolet radiation, microwave radiation, radio frequency radiation or vacuum ultraviolet radiation.

11. (Previously presented) The method of claim 1 wherein the introducing and initiating steps are carried out at a pressure in the range of approximately 1mTorr to 760 Torr.

12. (Previously presented) The method of claim 1 wherein the introducing and initiating steps are carried out at a pressure in the range of less that approximately 150 Torr.

13. (Previously presented) The method of claim 1 wherein the introducing and initiating steps are carried out at a pressure in the range of less than approximately 15 Torr.

14. (Withdrawn) The method of claim 3 wherein the method is carried out in a vacuum and at a temperature in the range of approximately 20 to 30 °C.

15. (Withdrawn) The method of claim 3 further comprising

purging the chamber following the irradiating step and,

repeating the steps a plurality of times with the same or different reactant gasses.